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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
WOOD, ELLEN S				
ART UNIT		PAPER NUMBER		
1794				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/581,362

Applicant(s)

HUNTEMANN ET AL.

Examiner

ELLEN S. WOOD

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11, 14, 15, 21, 23, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartz et al. (US 6,790,537, hereinafter "Bartz") in view of (www.crgp.net/syntactics.shtml).

In regards to claim 11, Bartz discloses a composite element structure with a polyisocyanate polyaddition product (ii) (col. 1 lines 5-10), which are usually polyurethanes (col. 2 lines 37-39). The (ii) is the combination of polyisocyanate with compounds that are reactive toward isocyanates (col. 1 lines 10-13). The compounds that are reactive toward isocyanates are those consisting of polyols selected from the group consisting of polyether polyalcohols (polyether polyol) (col. 4 lines 39-44). The (ii) are prepared by reacting (a) isocyanates with (b) compounds which are reactive toward isocyanates in the presence of (c) and also, if desired, (d) catalysts and/or (e) auxiliaries and/or additives (col. 3 lines 47-52). The component (b) is preferably a mixture (col. 6 lines 19-20). The first component (b1) is a polyether polyalcohol has a mean functionality of from 1.5 to 2.99 and a mean molecular weight of from 400 to 8000 g/mol (col. 6 lines 21-23). The second component (b2) is a polyether polyalcohol having a mean functionality of from 3 to 5 and a mean molecular weight from 150 to 8000 g/mol

(col. 6 lines 25-29). In addition chain extenders (b3) may be added in addition to the other components (col. 5 lines 45-50). Preferred fillers may also be added to the preparation (ii) such as hollow glass microspheres (col. 8 lines 24-26).

In regards to claim 14, Bartz discloses that (b1) is present in the amount from 40 to 98% by weight, (b2) is present in the amount from 1 to 30% by weight, and (b3) is present in the amount of 1 to 30% by weight, where the weights indicated are in each case based on the weight of the sum of the polyol component (col. 8 lines 44-58).

In regards to claims 15, Bartz discloses a composite element structure with a polyisocyanate polyaddition product (ii) (col. 1 lines 5-10), which are usually polyurethanes (col. 2 lines 37-39). The (ii) is formed by the method of the combination of polyisocyanate with compounds that are reactive toward isocyanates (col. 1 lines 10-13). The compounds that are reactive toward isocyanates are those consisting of polyols selected from the group consisting of polyether polyalcohols (polyether polyol) (col. 4 lines 39-44). The (ii) are prepared by reacting (a) isocyanates with (b) compounds which are reactive toward isocyanates in the presence of (c) and also, if desired, (d) catalysts and/or (e) auxiliaries and/or additives (col. 3 lines 47-52). The component (b) is preferably a mixture (col. 6 lines 19-20). The first component (b1) is a polyether polyalcohol has a mean functionality of from 1.5 to 2.99 and a mean molecular weight of from 400 to 8000 g/mol (col. 6 lines 21-23). The second component (b2) is a polyether polyalcohol having a mean functionality of from 3 to 5 and a mean molecular weight from 150 to 8000 g/mol (col. 6 lines 25-29). In addition chain extenders (b3) may be added in addition to the other components (col. 5 lines 45-50).

Preferred fillers may also be added to the preparation (ii) such as hollow glass microspheres (col. 8 lines 24-26).

In regards to claims 21, 23, 28, Bartz discloses that the glass microspheres may be added to the preparation (ii) (col. 8 lines 24-26).

In regards to claim 30, Bartz discloses that the filler comprises 10 to 70% by weight of the syntactic polyurethane (col. 8 lines 22-29).

Bartz is silent with regards to using hollow microspheres as the filler. Bartz teaches the use of fillers is the customary organic and inorganic known per se (col. 8 lines 1-5). It is known to one of ordinary skill in the art that syntactic foam is a lightweight engineered foam consisting of manufactured glass hollow spheres embedded in a resin matrix (www.crgp.net/syntactics.shtml). The hollow spheres are available in several materials, including glass, ceramic and polymers. Thus, it would be known to one of ordinary skill in the art that the glass microspheres that Bartz is referring to would be hollow otherwise the material formed would not be syntactic.

3. Claims 22, 24-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartz et al. (US 6,790,537, hereinafter "Bartz") in view of Massey (US 3,917,547).

Bartz discloses that fillers are the customary organic and inorganic known per se (col. 8 lines 1-5). The organic fillers included polyamide, polyurethane or polyester fibers (col. 8 lines 15-19). Bartz is silent with regards to the fillers being hollow plastic spheres and the properties associated with the fillers.

Massey discloses that it is known to one of ordinary skill in the art that various hollow spheres of glass, phenolic resin, Saran resin and so forth have been added to resins to produce foam-like structure, i.e., syntactic foams (col. 4 lines 26-29).

Thus, it would be obvious to one of ordinary skill in the art that the type and the appropriate properties of the hollow microsphere would be discovered by routine experimentation, because the use of hollow sphere fillers has been known to one of ordinary skill in the art for a lightweight material that can be used in composite materials.

4. Claims 12-13 and 16-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Bartz et al. (US 6,790,537, hereinafter "Bartz") in view of Lively (US 36,527,015).

In regards to claims 12-13, Bartz discloses that the polyol can have a constituent that is a polyether polyalcohol having a mean functionality of from 3 to 5 and a mean molecular weight from 150 to 8000 g/mol (col. 6 lines 25-29). The polyol is a mixture of at least two of the constituents disclosed by Bartz (col. 4 lines 39-49). The polyether polyalcohols used in the polyol are advantageous because they improve resistance of the polyisocyanate polyaddition products to hydrolytic cleavage and lower viscosity (col. 5 lines 22-25). Bartz is silent with regards to the polyol having a fourth additional constituent and the specified viscosity.

It would be obvious to one of ordinary skill in the art that the addition of a fourth constituent to the polyol would be advantageous to improve resistance of the polyisocyanate polyaddition products to hydrolytic cleavage and lower viscosity, which

would be advantageous in forming the composite elements more quickly and simply. The viscosity of the polyol produced by Bartz would be comparatively similar to that disclosed by the applicant, because the polyol produced is advantageous due to its low viscosity and also the polyol of Bartz is composed of similar polyether polyol constituents as claimed by the applicant.

In regards to claims 16-19, Bartz discloses polyisocyanate polyaddition products as described in the previous section. The polyisocyanate polyaddition products disclosed can be combined with additional layers to form a multilayered composite element (col. 1 lines 5-19). The layer of polyisocyanate polyaddition product is from 10 to 300 mm thick (col. 1 lines 9-10). The composite articles composite articles formed are advantageous in respect of their weight, manufacturing process and maintenance intensity (col. 1 lines 51-53). The composite elements have improved adhesion which gives a more stable and more durable structural element (col. 10 lines 54-55). They have an improved resistance to hydrolysis (col. 1 lines 55-56). The composite elements have excellent mechanical properties and very large dimensions are obtainable (col. 1 lines 59-62). The composite elements are used in areas which withstand large forces (col. 10 lines 56-58). The composite element has reduced crack propagation due to the increased amount of energy absorption (col. 10 lines 22-25). The composite articles have increased corrosion protection (col. 10 lines 19-21).

Bartz is silent with regards to the use of the polyisocyanate polyaddition product in offshore pipes and the formation of the offshore pipe.

Lively discloses using syntactic polyurethane as insulation (col. 5 lines 55-58) for pipes that are used as pipelines submerged in water (col. 7 lines 14-15).

It would be obvious to one of ordinary skill in the art that syntactic polyurethane composite elements disclosed by Bartz would be excellent for the use of offshore pipes. The composite articles of Bartz would be able to withstand the harsh conditions of the subsea depths. The articles would also provide excellent corrosion protection, impact strength, durability and flexibility, plus excellent adhesion to the raw pipe. Also, the composite articles are comparatively light weight, thus the articles would be easier to ship and lay.

Response to Arguments

5. Applicant's arguments filed 08/26/2008 have been fully considered but they are not persuasive.

The applicant argues that Bartz does not teach to use hollow microspheres. Bartz teaches the use of fillers is the customary organic and inorganic known per se (col. 8 lines 1-5). It is known to one of ordinary skill in the art that syntactic foam is a lightweight engineered foam consisting of manufactured glass hollow spheres embedded in a resin matrix (www.crgp.net/syntactics.shtml). The hollow spheres are available in several materials, including glass, ceramic and polymers. Thus, it would be known to one of ordinary skill in the art that the glass microspheres that Bartz is referring to would be hollow otherwise the material formed would not be syntactic.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELLEN S. WOOD whose telephone number is (571)270-3450. The examiner can normally be reached on Monday-Friday 7-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ellen S Wood
Examiner
Art Unit 1794

/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794